

# GROUND-WATER CONDITIONS IN UTAH, SPRING OF 1999

By

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# CONVERSION FACTORS

Multiply	By	To obtain
acre-foot	1,233	cubic meter
foot	0.3048	meter
gallon per minute	0.06308	liter per second
inch	25.4	millimeter
mile	1.609	kilometer
square mile	2.590	square kilometer

Chemical concentration is reported only in metric units—milligrams per liter. For concentrations less than 7,000 milligrams per liter, the numerical value is about the same as for concentrations in parts per million.

## DEFINITION OF TERMS

**Acre-foot**—The quantity of water required to cover 1 acre to a depth of 1 foot; equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

**Aquifer**—A geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield substantial amounts of water to wells and springs.

**Artesian**—Describes a well in which the water level stands above the top of the aquifer tapped by the well (confined). A flowing artesian well is one in which the water level is above the land surface.

**Dissolved**—Material in a representative water sample that passes through a 0.45-micron membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of “dissolved” constituents are made on subsamples of the filtrate.

**Land-surface datum (lsd)**—A datum plane that is approximately at land surface at each ground-water observation well.

**Milligrams per liter**—A unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represents the mass of solute per unit volume (liter) of water.

**Specific conductance**—A measure of the ability of water to conduct an electrical current. It is expressed in microsiemens per centimeter at 25 degrees Celsius. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids concentration of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in microsiemens). This relation is not constant in water from one well or stream to another, and it may vary for the same source with changes in the composition of the water.

**Cumulative departure from average annual precipitation**—A graph of the departure or difference between the average annual precipitation and the value of precipitation for each year, plotted cumulatively. A cumulative plot is generated by adding the departure from average precipitation for the current year to the sum of departure values for all previous years in the period of record. A positive departure, or greater-than-average precipitation, for a year results in a graph segment trending upward; a negative departure results in a graph segment trending downward. A generally downward-trending graph for a period of years represents a period of generally less-than-average precipitation, which commonly causes and corresponds with declining water levels in wells. Likewise, a generally upward-trending graph for a period of years represents a period of greater-than-average precipitation, which commonly causes and corresponds with rising water levels in wells. However, increases or decreases in withdrawals of ground water from wells also affect water levels and can change or eliminate the correlation between water levels in wells and the graph of cumulative departure from average precipitation.

# WELL-NUMBERING SYSTEM

The well-numbering system used in Utah is based on the Bureau of Land Management's system of land subdivision. The well-numbering system is familiar to most water users in Utah, and the well number shows the location of the well by quadrant, township, range, section, and position within the section. Well numbers for most of the State are derived from the Salt Lake Base Line and the Salt Lake Meridian. Well numbers for wells located inside the area of the Uintah Base Line and Meridian are designated in the same manner as those based on the Salt Lake Base Line and Meridian, with the addition of the "U" preceding the parentheses. The numbering system is illustrated below.

